



**The Valley Primary School
Class 2 Computing Curriculum 2023-2024.**

Autumn Term

We are Software Developers (Autumn 1)

Learning Objectives:

- To play and analyse educational games.
- To create a game that asks a question and provides feedback.
- To develop the educational game to include repetition.
- To improve the interface of the educational game
- To build in additional levels or make their game increase in difficulty.
- To test and improve the educational game, correcting any errors.

Key vocabulary

Algorithm: a sequence of precise instructions or steps (sometimes a set of rules) to achieve an objective

Bug: an error or mistake in a program or algorithm, causing the computer or robot to behave in a manner that was not originally intended

Debug: correct mistakes in a computer program or algorithm

Input: data supplied to a computer, in this case the algorithm takes from the storyboard for the animation

Output: information produced by a computer, in this case an animation

Program: a sequence of instructions for sometimes a set of rules that can be followed by a computer

Repeat loop: a sequence of instructions executed a fixed number of times or until some condition is met, or possibly forever

Repetition: programming construct which allows a group of instructions to be repeated a number of times, or until a certain condition is met

Scratch: simple, block-based programming language in which programs for characters are built by snapping together code blocks

Sequence: placing programming instructions in order, so each one happens one after the other

Sprite: a graphical character in a program that can be given its own sequence of instructions

Variable: lets computer programs store, retrieve or change simple data. Typically thought of as a particular location in the computer's memory that holds a specific item of data

We are Musicians (Autumn 2)

Learning Objectives:

- To recall earlier work on creating a percussion loop.
- To experiment with the touch instruments
- To create a tune in piano roll view
- To create a piece of music using live loops
- To create a multi-track composition in GarageBand.
- To refine and perform a piece of music.

Key vocabulary

Beat sequencer: interface for creating a repeating percussion pattern, showing at which beat in a set of bars individual instruments are hit

Live loops: GarageBand tool for creating and performing electronic, typically dance music, in which multiple samples are played with synchronisation managed by the software

MIDI: Musical Instrument Digital Interface, originally a standard for connecting electronic instruments, now used for the associated file format in which note pitch, duration and velocity are specified, allowing subsequent playback using different instrument voices or samples

Piano roll: interface for controlling the pitch and duration of individual notes, a digital equivalent of stave notation, derived from the punched-hole piano rolls used for player-pianos in the 19th century. The velocity (volume) of individual notes can also be specified

Sample: a short, recorded piece of digital audio, for example a hand clap or an individual note

Stave: traditional musical notation in which pitch is represented by the height of the line on which the note is drawn, and duration by the shape of that note

Touch instrument: GarageBand interface for keyboards, strings and percussion instruments, which can be played and recorded live on the iPad screen

Tracks: GarageBand tool for combining and modifying music recordings, performed or created using other components of the program

Velocity: hits, the volume of individual notes – retaining the speed and force with which piano keys are pressed determines the volume of the notes played

Wave: in this context, the virtual instrument chosen to replay music, with the associated samples of notes of different pitches

Spring Term

We are Makers (Spring 1)

Learning objectives:

- To learn about the micro:bit, and how to create a program using MakeCode.
- To read a micro:bit program and predict what it will do.
- To modify a micro:bit program.
- To create a micro:bit program to simulate rolling two dice.
- To plan a micro:bit program.
- To code and test their own micro:bit project.

Key vocabulary

Accelerometer: hardware component providing data on changes in motion, typically in three directions

Algorithm: a sequence of precise instructions or steps (sometimes a set of rules) to achieve an objective

Bluetooth: wireless digital communication protocol using low energy signals over short distances

If/else if/else: programming selection construct which indicates what code should be run depending on which one of multiple conditions are satisfied

JavaScript: text-based programming language, commonly used to power interactive web pages

LED: light emitting diode, an electronic component that lights up when current flows in one direction

MakeCode: block- and text-based editor from Microsoft, supporting a variety of hardware platforms including the micro:bit

micro:bit: simple, single board programmable computer with integrated input, output and network capabilities

Object code: a version of the program converted (compiled) into the detailed instructions to be followed by the computer's processor

Runtime: the complete software environment (operating system, drivers, interpreter) needed for a program to run on particular hardware

Simulator: software allowing one computer system to behave as another; in this case, the MakeCode editor includes an on-screen simulator of a micro:bit so that programs can be tested

Source code: the program as written, in a language that can be understood by both the programmer and the computer

Variable: lets computer programs store, retrieve or change simple data – typically thought of as a particular bit of the computer's memory that holds a specific bit of data

We are Bloggers (Spring 2)

Learning objectives:

- To write a blog post.
- To comment on blog posts.
- To add images to blog posts.
- To insert audio or video from another website into a blog.
- To create a live blog.

Key vocabulary

Creative Commons: copyright licensing scheme in which content can be re-used without additional permission, subject to certain specified conditions

Hyperlinks: text or images that, when clicked, opens another page or moves to another part of the document

Hypertext mark-up language (HTML): the predominant language for web pages

Internet: global network connecting computers and local networks using automated switches, routers and fibre optic, copper wire and radio connections

Uniform Resource Locator (URL): a standard for specifying the location on the Internet of certain data files. The URL includes the protocol used to transmit the data, the computer on which it is stored, the file path and the file name of the data

Web server: a service running on a computer (or sometimes the computer itself) that returns HTML data for a web page when it receives a request via the local network or the Internet

Summer Term

We are Artists. (Summer 1)

Learning Objectives:

- To create simple tessellations using Inkscape.
- To create more complex tessellations using Inkscape.
- To program Islamic-style art in Scratch.
- To create a repeating pattern in Scratch.
- To use Inkscape to create art inspired by the later work of Bridget Riley.
- To create art using Inkscape inspired by the early style of Bridget Riley.

Key vocabulary

Abstraction: a process of managing complexity by setting to the side irrelevant detail and concentrating on function rather than form

Bitmap: an image represented by a large, rectangular grid of pixels, each having its own colour value, typically in the range 0 to 255 for each of red, blue and green

Fractal: a self-similar repeating (or almost repeating) structure in which ever greater detail becomes apparent as the structure is examined more closely

Pixel: picture element – one of the small, square dots that makes up a digital image

Repetition: programming construct which allows a group of instructions to be repeated a number of times, or until a certain condition is met

Sprite: a graphical character in a program that can be given its own sequence of instructions

Tessellation: a regular pattern of one shape that fills a space without overlapping or leaving spaces between

Transform: to change the shape of an image or part of an image

Turtle: a small floor robot (or a representation of one on screen) that draws by moving forward and turning, under the control of a program, for example in Logo or Scratch's pen commands

Vector graphics: a way of representing an image by specifying the lines, arcs and regions from which it is made

Online Safety (Summer 2)

Learning Objectives:

To identify how a message can hurt someone's feelings.

To use a search engine accurately.

To understand the term 'plagiarism' and how to avoid it.

To create a safe online profile.

To explain how to be a responsible digital citizen.

To create an online safety superhero character.

Key Vocabulary – plagiarism, digital citizen, private, safe, unsafe, profile, edit, respectful, communication, search results, website, registration, online and real life communication.